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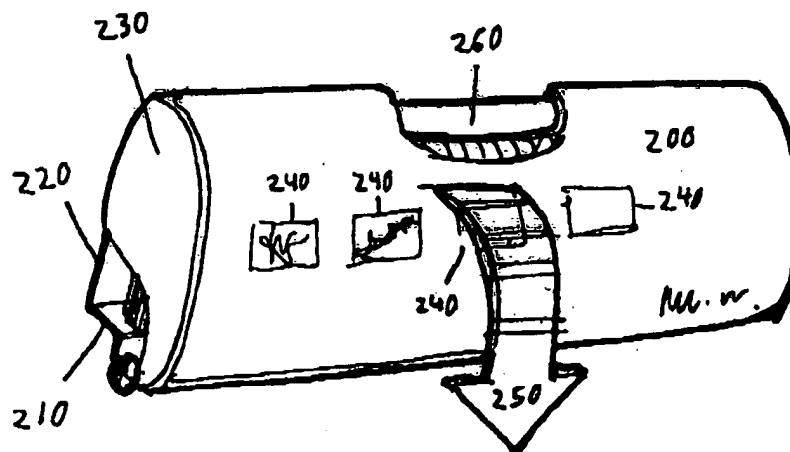
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(54) Title: EVACUATION KIT



(57) Abstract: A dispenser unit (200) including a housing which defines a chamber and chamber opening for holding one or more dispensable objects. The dispenser also comprises a lid (270) for selectively opening and closing access to the chamber. The dispenser may store one or more emergency supplies, such as an emergency escape hood (260) prepacked in a container. In another embodiment, a prepacked kit (600) is sealed and has a means of indicating whether it has been opened. The prepacked kit is packaged so that it can be readily located in the event of an emergency. The prepacked kit is mounted under a work surface, such as a desk, or on a wall, so that it is conveniently located in the event of an emergency.

WO 03/080472 A1

WO 03/080472 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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EVACUATION KIT**RELATED APPLICATION INFORMATION**

This application claims the benefit of United States Provisional Patent Applications, serial numbers 60/364,484, filed March 16, 2002, entitled, "Evacuation Kit," and 60/365,064, filed March 16, 2002 as well as United States Design Patent Application serial number
10 29/157,333 , filed March 16, 2002 the disclosure of which is hereby incorporated by reference.

FIELD OF THE INVENTION

This invention relates to an emergency evacuation kit, and more particularly, to an
15 emergency kit to aid individuals in evacuating a building during an emergency.

BACKGROUND OF THE INVENTION

Emergencies can arise in many situations, such as the home, automobile and the workplace. Over the years, emergency kits have been developed that address many of these
20 situations. For example, U.S. Patents Nos. 657,463 to Simpson, 752,463 to Morris and 1,625,547 to Kessler each discloses an emergency case having a hinged box containing medical supplies and a first aid book. U.S. Patent Nos. 1,857,824 to Scholz *et al.*, 2,982,392 to Bossone, 3,254,756 to Rankin, and 4,471,873 to Thomas each discloses a safety kit for motor vehicles. These safety kits also may a variety of items.

25 U.S. Patent No. 3,935,944 to Wilson et al. discloses a diagnostic display packaging having a transparent cover and small receptacles within. The package is useful for conveniently storing and displaying medical diagnostic tests.

U.S. Patent No. 4,726,365 to Jablonski discloses an air filtering apparatus for use in aircraft emergencies. The apparatus includes an transparent cover whereby a passenger may
30 visualize the air filter mask and instructions for using the filter mask, the instructions being

5 visible when the pouch is in an unopened state. U.S. Patents Nos. 4,473,463 to Hall and 5,483,956 describe other masks that can be used to protect a wearer from smoky conditions.

U.S. Patents Nos. 5,361,412 to Perry and 6,314,579 to Marcon describe emergency survival vests. Such vests might include emergency supplies such as blankets, and signaling devices.

10 Emergencies in the workplace or in high-rise buildings or large multi-unit facilities, such as personal care homes, dormitories and hotels, pose particular problems. Persons or residents may be unfamiliar with their surroundings or can become confused during emergencies. Furthermore, they may face the following problems: (1) inadequate training; (2) lack of safety awareness; and (3) unavailable or inaccessible emergency tools. For
15 example, many facilities do not provide the basic necessities needed for escape from emergencies, such as a fire emergency or a bomb blast, including a fire-resistant blanket, flashlight, alarm locator and instructions on how to escape from a given room or structure.

While some facilities may provide such items, in emergency situations many persons panic and cannot and do not locate these various items, which can result in an unnecessary
20 loss of life. Furthermore, some aged or infirm individuals may not be able to exit the facility themselves in an emergency situation. In those instances, it may be difficult for rescuers to locate any incapacitated individuals. Most, if not all, facilities fail to provide such individuals with a means for identifying their location in an emergency. A personal location signal alarm, however, would help rescuers locate individuals, especially incapacitated
25 individuals, readily.

A major disadvantage of emergency kits heretofore has been the fact that equipment can be removed for use (or pilfered) and the container can be reclosed and appear ready for re-use. Accordingly, there is the possibility that the incompletely equipped or empty kit container might be taken for use in an emergency.

5 It is also important that a person unfamiliar with the surroundings, for instance a guest in a hotel or a visitor to an office, can identify the location of an emergency kit under the adverse conditions that might arise in an emergency. Another important factor is that the person unfamiliar with the surroundings is able to readily open the emergency kit under any adverse conditions.

10 Therefore, it is an object of the present invention to improve the safety of persons in the workplace or multi-unit dwelling. There is a need for an accessible, compact, kit providing necessities for escape from an emergency situation, such as a fire, earthquake or bomb blast, particularly in the workplace or multi-unit facility.

15 **SUMMARY OF THE INVENTION**

 Embodiments of the present invention provide a method and apparatus for an evacuation kit. Various embodiments of the present invention improve the safety of persons in an emergency situation. In one alternative, the present invention is directed to a wall mounted smoke hood storage dispenser that provides quick easy access. The present
20 invention may also contain a battery – powered auditory and visual locator. The dispenser may come in a variety of different sizes, shapes and colors. The outer surface of the dispenser may be outfitted with at least a photo-illuminant/glow-in-the dark decals, artwork and a tamper deterrent film covering.

 This invention improves the safety of persons facing an emergency situation in the
25 workplace, high-rise building or multi-unit facility by providing an accessible, compact kit providing the necessities for escape from an emergency situation. In one alternative embodiment, the emergency situation is a fire. In another embodiment, the emergency situation is a bomb blast. In another embodiment, the workplace situation is a natural

5 disaster, such as a flood, hurricane or tornado. In yet another embodiment, the emergency situation is a terrorist attack or the like.

In one alternative embodiment, the kit is a comprehensive and personalized office evacuation system. In one alternative embodiment, the kit comprises a smoke hood. In another embodiment, the kit comprises one or more smoke hoods. Such hoods should meet
10 one or more nationally or internationally recognized safety standards. In another embodiment, the kit comprises one or more packets of sterile water. In another embodiment, the kit comprises 2 packets of water. In another embodiment, the kit comprises one or more flashlights. In another embodiment, the kit comprises a flashlight, such as a Streamlight 2AA flashlight. In one alternative embodiment, the kit comprises one or more light sticks. In one
15 embodiment, the light stick is an OmniGlow Snaplight Light Stick. Desirably, the light stick can emit light for at least 1 to 12 hours, preferably at least 12 hours. In another embodiment, the kit comprises one or more personal alarms.

The purpose of the alarm allows the emergency rescuer to locate the individual during an emergency. In one embodiment, an alarm emits a signal detectible by a human being
20 without the assistance of sensory enhancing devices. In one embodiment, the signal is an audible signal. In another embodiment, the signal is a visual signal. In one embodiment, to conserve the alarm's battery, the alarm emits a signal intermittently. In one embodiment, the alarm continues to operate once emitting. Thus, if an individual loses consciousness, the alarm continues to operate. In one embodiment, a user is able to control when the alarm
25 emits even after the alarm is operating. In one embodiment, the kit contains hearing protection to enable a reduction or elimination of harm to an individual's hearing during operation of an alarm.

In one embodiment, an alarm emits a signal detectable with the assistance of a sensory enhancing device. In one embodiment, an alarm emits a signal above the human

5 hearing range. In another embodiment, an alarm emits a signal below the human hearing range. In one embodiment, an alarm emits a signal that falls in the hearing range of a dog. In one embodiment, the kit comprises a chemical packet. In one embodiment, the chemical packet contains a scent detectable by a dog and distinguishable from scents normally encountered at the location, even in emergency situations.

10 In one alternative embodiment, the kit comprises one or more of the following components: (1) smoke hood; (2) packet of sterile water; (3) flashlight; (4) light stick; and (5) a personal alarm. In another embodiment, the kit comprises following components: (1) smoke hood; (2) a light stick; and (3) a personal alarm.

In another embodiment, the kit comprises a respiratory device, such as an Evac-U8™
15 respiratory hood. Such hood may comprise a teflon coated kapton hood. Such hood providing heat protection up to 800 degrees Fahrenheit. Such hood may have heat resistive properties, is fully adjustable, containing a photo luminescent locator disc, and manufactured under ISO 9001. Such hood may also comprise a filter which converts carbon monoxide to carbon dioxide. Such hood may also provide approximately 20 minutes of protection from
20 harmful gasses and particulate matter.

In one alternative embodiment, the kit comprises an information card containing indicia on emergency exit floor plans, emergency phone numbers and other information relevant to exiting the building in an emergency. In one alternative embodiment, the information card contains company-specific, floor-specific or building-specific information.

25 In one alternative embodiment, the present invention comprises an emergency evacuation system comprising a plastic molded container that has a built-in, easy to open handle. The components of the kit being disposed therein. The information indicia may be disposed on the outer surface of the container. The container may have luminescent lettering disposed on the outer surface of the container for identifying the kit.

5 In one alternative embodiment, the kit is color-coded by expiration date.

 In one alternative embodiment, the kit is mounted under a desk.

 In one alternative embodiment, the kit is mounted on the wall or panel using any suitably attaching means, including but not limited to a hook, suction cups, magnets, brackets, or any combination thereof.

10 In one alternative embodiment, the kit is a nylon fabric or fire-resistant material waist-pack with waist straps and easy-to-use buckle for quick donning such that the hands are kept free. Such kit component disposed therein. In another embodiment, the pack is plastic molded insert containing all the safety supplies or kit elements.

 In one alternative embodiment, the kit is a vest with the kit components disposed in
15 pockets on the front of the vest for easy access. Such vest fastens through a Velcro buckle system, thus keeping the users hands free. Such vest comprising highly reflective strips for easy visibility. Such vest providing torso protection from flame and heat. Such vest comprised of a material such that it withstands temperatures up to 550 degree Fahrenheit.

 In one alternative embodiment, the present invention is an evacuation system
20 comprising the evacuation kit of the present invention, annual customized training classes for employees, instructors, training videos and manuals.

BRIEF DESCRIPTION OF THE DRAWINGS

 These and other features, aspects and advantages of the present invention will become
25 better understood with regard to the following description, appended claims and accompanying drawings where:

 FIG. 1 is a side cross-sectional view of an embodiment of a smoke hood dispenser in a closed position;

5 FIG. 2 is a perspective view of a smoke hood dispenser embodiment of the present invention;

 FIG. 3 is a view of an open smoke hood dispenser embodiment of the present invention;

 FIG. 4 is side view of a smoke hood dispenser embodiment of the present invention
10 with packaged smoke hoods stored therein;

 FIG. 5 is a top view of a smoke hood dispenser embodiment of the present invention in a fully closed position;

 FIG. 6 is a perspective view of a smoke hood dispenser embodiment of the present invention;

15 FIG. 7 shows an embodiment of the packaging of the kit of the present invention being opened;

 FIG. 8 shows a cross-sectional representation of an embodiment of the packaging of the kit of the present invention;

 FIG. 9 shows a cross-sectional representation of an embodiment of the packaging of
20 the kit of FIG. 8 in which the peelable film cover is starting to be removed;

 FIG. 10 shows one embodiment in which the packaging of the kit of the present invention is mounted under a conventional surface;

 FIG. 11 shows the embodiment of FIG. 10 in which the packaging of the kit of the present invention is mounted under a desk is readily removed;

25 FIG. 12 shows the embodiment of FIGs. 10 and 11 from the underside of a desk;

 FIG. 13 is a top down view of one embodiment of a sealed packaging of the kit of the present invention;

 FIG. 14 is a bottom up view of one embodiment of a packaging tray of the kit of the present invention;

5 FIG. 15 is a side view of one embodiment of the packaging of the kit of the present invention of FIG. 13;

 FIG. 16 is a bottom view of one embodiment of the packaging of a kit of the present invention;

 FIG. 17 is a bottom view of one embodiment of a bracket for holding the packaging
10 of a kit according to the present invention without the packaging;

 FIG. 18 is a bottom view of one embodiment of a bracket for holding the packaging of a kit according to the present invention with the packaging;

 FIG. 19 is a side view from the opening side of one embodiment of a bracket for holding the packaging of a kit according to the present invention without the packaging;

15 FIG. 20 is a bottom view of the bracket of FIG. 19;

 FIG. 21 is a side view from either side of the bracket of FIG. 19;

 FIG. 22 is a rear side view of the bracket of FIG. 19;

 FIG. 23 is a side view from the opening side of an alternative embodiment of a bracket for holding the packaging of a kit according to the present invention without the
20 packaging;

 FIG. 24 is a top down view of the bracket of FIG. 23;

 FIG. 25 is a side view of the bracket of FIG. 23 from the rear;

 FIG. 26 is a side view of the bracket of FIG. 23 from either side;

 FIG. 27 is a bottom up view of the bracket of FIG. 23;

25 FIG. 28 is a side view from the opening side of a further alternative embodiment of a bracket for holding the packaging of a kit according to the present invention without the packaging;

 FIG. 29 is a side view of the bracket of FIG. 28 from either side;

 FIG. 30 is a bottom up view of the bracket of FIG. 28;

- 5 FIG. 31 is a side view of the bracket of FIG. 28 from the rear;
- FIG. 32 shows a view of the interior of one embodiment of the kit packaging of the present invention, with the kit components disposed therein;
- FIG. 33 shows a view of the kit of FIG. 32 taken along line A-A;
- FIG. 34 shows a view of the kit of FIG. 32 taken along line B-B;
- 10 FIG. 35 shows a view of the kit of FIG. 32 taken along line C-C;
- FIG. 36 show a bottom view of a tray embodiment containing components according to the present invention;
- FIG. 37 shows a view of another embodiment of components in a tray according to the present invention;
- 15 FIG. 38 shows a sealed kit according to the present invention from the top and a side view of a second kit as well as some of the contents of a third kit;
- FIG. 39 is a block diagram of an evacuation kit mounted under a desk in accordance with one embodiment of the present invention;
- FIG. 40 is a block diagram of a top view of an evacuation kit in accordance with one
- 20 embodiment of the present invention;
- FIG. 41 is a flow diagram of the process of evacuating an emergency situation in accordance with one embodiment of the present invention; and
- FIG. 42 is a flow diagram of the logic of one embodiment of an intelligent smoke hood dispenser embodiment of the present invention.

25

DETAILED DESCRIPTION OF THE INVENTION

The invention is a method and apparatus for an evacuation kit. In the following description, numerous specific details are set forth to provide a more thorough description of embodiments of the invention. It is apparent, however, to one skilled in the art, that the

5 invention may be practiced without these specific details. In other instances, well known features have not been described in detail so as not to obscure the invention.

FIGs. 1 through 6 show smoke hood dispensers according to the present invention. Such dispensers can be either wall mounted, or placed on top of a surface that is readily available in the event of an emergency situation. Desirably, a smoke hood dispensers
10 according to the present invention containing a plurality of smoke hoods is placed wherever a plurality of people might gather. It is further desired that such dispensers are marked in a manner that allows its rapid detection by people during an emergency situation. For instance, the smoke hood dispenser could have glow in the dark markings that make it readily visible in low lighting. In another embodiment, or combined with readily visible markings, the
15 smoke hood dispenser could have a means for emitting an auditable signal identifying its location. It is still further preferred that the open smoke hood dispenser contain evacuation directions relevant to its location which are visible in low lighting.

FIGs. 7, 8 and 9 illustrate non-limiting examples of conventional packaging that is useful in conjunction with the kit of the present invention. The packaging should be such that
20 it is apparent if the packaging has been opened. Nonetheless, it should be easy to open by a person in a panicked state. In a preferred embodiment, the packaging consists of a transparent tray, for instance an injection molded polystyrene that is designed to hold the components of the kit in place during transport, but will readily release the components when they are pulled upon. It is further desired that the tray has a peelable film cover.

25 In one preferred embodiment, when the film is peeled from the tray, a material, such as a coloring material, is released that clearly indicates that the seal has been broken.

FIG. 8 shows laminate 810 sealed at points 820 to tray 800. In FIG. 9, laminate 810 is pulled back from tray 800 to break the seal at point 825.

5 FIGs. 10 - 12 show one embodiment of how an evacuation kit according to the present invention may be mounted on the underside of a desk. More particularly, in the normal state shown in FIG. 10, the evacuation kit according to the present invention is stored under, for instance, a desk, or other conventional work surface. Desirably, the kit easily slides into, and out of, a track mounted on the underside of the work surface. In the event of an emergency
10 situation, a person in danger can rapidly remove the tray containing the evacuation kit by pulling on handle 1100. FIG. 12 shows a view of the tray containing an evacuation kit according to the present invention is a "being removed" and in a storage position. The view of FIG. 12 is taken from under the work surface, looking up at the bottom of the tray.

 FIGs. 13 -15 show several views of a preferred embodiment of the exterior of kit
15 packaging useful in the present invention. Desirably, the kit packaging is a vacuum form tray with a top closure film seal.

 In some embodiments of the vacuum form tray used in the present invention, the bottom of the tray has one or more ribs. For instance, the bottom could have an X shaped rib. These ribs provide additional rigidity to the tray.

20 It is further preferred that the tray is thermoformed.

 Desirably, the top of the tray is sealed with a film. It is preferred that the film is thick enough so that it will not break when opening the kit of the present invention. In one embodiment, the sealing film is a laminated film in which the top layer is a PET with graphics printed on the back. The next layer is desirably a co-extruded polyvinyl acetate and
25 polyethylene matrix. This second layer is sealed against the tray.

 FIGs. 16 - 22 show a bracket for mounting the kit on the underside of a desk. In one alternative embodiment, the kit slides into a plastic bracket, which desirable may be constructed of a molded plastic, and more desirably, an injection molded plastic, such as polystyrene.

5 FIGs. 23- 27 shows a first alternative metal under work surface, e.g., desk, bracket.

FIGs. 28 - 31 show a further alternative metal under work surface bracket.

In yet another alternative embodiment, a wall mounting bracket (made for example of metal or plastic) may be used to position the kit of the present invention on a wall.

In a still further alternative embodiment, a hook and loop (e.g., Velcro™) system can
10 be used to mounting a kit according to the present invention to either the underside of a work surface or to a wall.

The present invention relates to dispenser unit. In one alternatives embodiment of the present invention, the dispenser unit is adapted to hold emergency supplies, including but not limited to an emergency escape smoke hood. In an alternative embodiment, the present
15 invention may comprise a mounting system, locating beacons, photo-illuminiscent or glow in the dark decals, tamper deterrent film covering and safety communicative decals.

In embodiment of FIGs. 32 - 35, the kit of the present invention comprises a smoke hood, a flashlight, glow stick, alarm, alarm hook or clip, and water packs. It is desired that the components of the kit of the present invention fit snugly in the kit tray so that they do not
20 shift around during shipping, yet they are still easy to remove from the tray during an emergency.

More particularly, FIG. 32 shows a top view of a kit of the present invention packed in a tray so that the components are snug, they do not move around during shipping. But the components are nonetheless readily removed by a relatively weak individual. For instance, in
25 one embodiment, the tray has ridges such that the several components are held snug when placed in depressions in the tray.

In a particularly preferred embodiment, the tray consists of both the outer tray, or bucket, and an inner tray containing depressions and other ridges designed to snugly hold each component of the evacuation kit.

5 FIG. 33 shows an embodiment in which tray 3300 contains water packs 3310, smoke hood 3320, alarm 3330, flashlight 3340 and glow stick 3350. Alarm 3330 desirable has a means of being attached to the person deploying the alarm, for instance, alarm hook 3335.

FIGs. 36 and 37 show a bottom view of a tray embodiment useful in the present invention.

10 FIG. 37 shows another embodiment in which tray 3300 contains water packs 3310, smoke hood 3320, alarm 3330, flashlight 3340 and glow stick 3350 in another arrangement. Alarm 3330 again desirable has a means of being attached to the person deploying the alarm, for instance, alarm hook 3335.

Smoke Hood

15 In a desired embodiment of the present invention, the SMOKE HOOD has the following components:

1. A Catalyst Filter;

In a desired embodiment of the present invention, the Catalyst Filter has the following characteristics:

- 20 • Valve System prevents re-breathing of exhaled air (carbon dioxide)
- Multi-stage catalytic filter provides superior protection against toxic fire gases from fire
- An electro-statically charged N95 fiber filter traps micron-size soot particles that are 0.5 micron and larger
- 25 • Mil-spec (military specification) activated carbon charcoal filter absorbs various toxic fumes and acids
- "Zeolite" molecular sieve layer absorbs moisture and toxic gases
- Hopacalite catalytic converter changes toxic CO to non-toxic CO₂ and provides up to 20 minutes of protection against at 2,500 PPM

- 5 • Provides 15-20 minutes of protection against high concentrations of CO, hydrogen cyanide, hydrogen chloride, acrolein, acrylonitrile, ammonia, sulfur dioxide, chlorine, benzene, formaldehyde, hydrotic acid methylamine, ozone, phosgene, styrene, hydrogen, sulphide, tetrachloroethylene, thionyl chloride and tear gas; and

10 2. A Teflon-Coated Kapton Hood

In a desired embodiment of the present invention, the Teflon-Coated Kapton Hood has the following characteristics:

- Provides transient heat protection up to 800°F
- Chemical resistive properties
- 15 • Easy to use and adjustable to fit people of different sizes
- Unlimited field of vision
- Positive-pressure hood toxic gases from entering the hood
- Photo luminescent locator disc

Personal Alarm

- 20 The purpose of the alarm allows the emergency rescuer to locate the individual during an emergency. In one embodiment, an alarm emits a signal detectible by a human being without the assistance of sensory enhancing devices. In one embodiment, the signal is an audible signal. In another embodiment, the signal is a visual signal. In one embodiment, to conserve the alarm's battery, the alarm emits a signal intermittently. In one embodiment, the
- 25 alarm continues to operate once emitting. Thus, if an individual loses consciousness, the alarm continues to operate. In one embodiment, a user is able to control when the alarm emits even after the alarm is operating. In one embodiment, the kit also comprises an alarm hook clip used to affix an alarm to a user. In one embodiment, the kit contains hearing

5 protection to enable a reduction or elimination of harm to an individual's hearing during operation of an alarm.

In one embodiment, an alarm emits a signal detectable with the assistance of a sensory enhancing device. In one embodiment, an alarm emits a signal above the human hearing range. In another embodiment, an alarm emits a signal below the human hearing
10 range. In one embodiment, an alarm emits a signal that falls in the hearing range of a dog, pig or other search animal. In one embodiment, an alarm's signal is detectable by an electronic device. In one embodiment, the kit comprises a chemical packet. In one embodiment, the chemical packet contains a scent detectable by a dog, pig or other search animal and distinguishable from scents normally encountered at the location, even in
15 emergency situations. In another embodiment, a non-animal chemical detector is used to detect the scent.

In one alternative embodiment, the kit comprises a personal alarm, preferably a 130 decibel alarm. Such alarm having an easy-to-use pull-trigger pin for sounding the alarm. For example, such alarm may sound continuously for approximately 4 hours. The alarm may also
20 be triggered by an "on"/"off" button.

In a desired embodiment of the present invention, an auditable Personal Alarm has the following characteristics:

- 130 decibel continuous sounding alarm
- Easy to use pull-trigger pin
- 25 • Battery Type: 9 volt Rayovac alkaline (7-year non-use shelf life)

Sterile Water

In one alternative embodiment, the kit comprises a pouch of preserved water, preferably at least 4 ounces of sterile, purified water. Such water used for flushing the eyes, drinking or cleaning a wound.

5 In a desired embodiment of the present invention, the Sterile Water has the following characteristics:

- U.S. Coast Guard Approved
- No oxygen transfer, will remain usable for up to 5 years
- Withstands temperatures form -40° to +210F
- 10 • 4.225 ounces of sterile, purified water
- Use for drinking or to clean a wound
- 5-year shelf life

An Illumination Product

 In one alternative embodiment, the kit comprises an illumination product. In one
15 embodiment, the illumination product is a flashlight. In one embodiment, the flashlight is a Streamlight flashlight. In one embodiment, the flashlight is waterproof. In another embodiment, the flashlight is a high-intensity light source. In still another embodiment, the flashlight is non-conductive and non-corrosive. In yet another embodiment, the flashlight has an unbreakable polycarbonate lens. In one embodiment, the flashlight provides at least four
20 hours of continuous use. In another embodiment, the flashlight meets nationally and/or internationally recognized safety standards.

 In a desired embodiment of the present invention, the flashlight has the following characteristics:

- High-intensity xenon gas filled bi-pin bulb
- 25 • Tested candlepower up to 3,500
- Non-conductive and corrosion proof
- Shock-resistance engineering grade polymer case with thermoplastic elastomer grip
- Unbreakable polycarbonate lens

- 5
- Dual switches (head and tailcap)
 - Waterproof to 200 feet
 - Run time: up to 4 hours of continuous use
 - Color: yellow
 - Battery type: (2) AA alkaline (7-year non-use shelf life)

10 Light Stick

In one alternative embodiment, the kit comprises a light stick, such stick providing 12 hours of illumination and 360 degree light generation. Such stick being waterproof, non-spark or heat generating, and easy to activate.

In a desired embodiment of the present invention, the Light Stick has the following
15 characteristics:

- Illumination for 12 hours
- No heat generated; No sparks
- Non-flammable and non-explosive
- Waterproof
- 20 • 360° light generation
- Easy to activate

1. Dispenser Unit

In accordance with one aspect of the invention, as exemplified in Figures 1-6, there is provided a dispenser unit (1) comprising a housing (2) defining a chamber (3) for holding
25 dispensable objects (4). The housing includes a base (5) connected to a rear wall (6), thus forming an open chamber section (7) through which the dispensable objects (4) can be placed into and removed from the chamber (3). A lid (8) is arranged on the housing for selectively opening and closing access to the chamber (3). The lid (8) may be secured to the rear base (5) or wall (6) of the housing and is rotatable about an axis of rotation between an open

5 position where the dispensable objects (4) can be removed from the chamber and a closed position where the dispensable objects cannot be removed from the chamber (3).

In one alternative embodiment, a lid of the dispenser is at least partially cylindrical. The lid may have an arcuate top section. In another alternative embodiment, the dispenser lid has a projection or depression at the top section of the housing, serving as an opening or
10 closing means. The lid of the dispenser may include a handle for rotating the lid between the open and closed positions. In another embodiment, the dispenser holds dispensable objects including emergency supplies, such as an emergency escape smoke hood, including the EVAC.U8®. This product is described in U.S. Pat. No. 5,186,165, which is incorporated herein by reference in its entirety.

15 In yet another embodiment, the lid of the dispenser has a substantially cylindrical shell configuration including an arcuate top section having a surface that defines the outward perimeter of the chamber.

2. Mounting System

20 The mounting of the present invention system may comprise a bracket. The bracket may be attached to a solid surface, such as a wall. The dispensing unit may be adapted to become affixed to the mounting bracket such that the lid of the dispenser unit is accessible to an individual.

The dispenser unit may be secured to the mounting bracket by a locking system. The
25 locking system is designed such that the dispensing unit can only be replaced by an authorized company or individual.

3. Locating Beacons

There may be at least two types of beacons utilized in the present invention. A sound beacon and a light beacon for light. The sound beacon will provide an individual a signal,

- 5 whereby the signal can lead the individual to the dispenser in the event there is no light or the area is too smoky, for example.

The light beacon may be a strobe light. The light is used to flash in low visibility and/or smoky environments. It also may be used in the event an individual cannot distinguish the alarm on the dispenser from possible external alarms.

10 4. Photo-illuminant/Glow-in-the-Dark Decals

In one alternative embodiment, one or more reflective decals may be positioned on the outside cover of the dispenser so that the dispenser unit can be located in the dark or during periods of low visibility. The decals may also indicate that the contents inside the dispenser can be used to assist individuals to evacuate from an area during an emergency.

15 5. Tamper Deterrent Film Covering

In one alternative embodiment of the present invention, a film spans across a latch of the dispenser. The function of the film is to discourage individuals from opening the dispenser in a non-emergency situation.

6. Safety Communicative Decals

- 20 Positioned on the outer surface of the dispenser are one or more highly reflective decals for communicating the location of the dispenser to an individual during an emergency situation.

The dispenser of the present invention may be made of any suitable polymeric or metallic material, or any combination thereof. The material of which the dispenser is made is
25 not a limited feature of the present invention. Thus, other material may be suitable. It should be appreciated that overall configuration can include various geometric shapes.

The configuration and dimensions of the housing can vary. By way of example only, the length of the dispenser can range between 1 to 3 feet and the height may range between 4 inches to 12 inches.

5

Kit Contents

In one alternative embodiment, the kit comprises one or more of the following components: (1) smoke hood; (2) packet of sterile water; (3) flashlight; (4) light stick; and (5) personal alarm. In another embodiment, the kit comprises a respiratory device. In one
10 embodiment, the respiratory device is an Evac-U8™ respiratory hood. In one embodiment, the respiratory device comprises a teflon coated kapton hood. In one embodiment, the hood provides heat protection up to 800 degrees Fahrenheit. In one embodiment, the hood has heat
15 resistive properties, is fully adjustable, contains a photo luminescent locator disc, and manufactured under ISO 9001. In another embodiment, the hood comprises a filter which converts carbon monoxide to carbon dioxide. In one embodiment, the hood provides
approximately 20 minutes of protection from harmful gasses and particulate matter.

In one alternative embodiment, the kit comprises a personal alarm, preferably a 130 decibel alarm. In one embodiment, the alarm has an easy-to-use pull-trigger pin for engaging the alarm. In another embodiment, the alarm sounds continuously for approximately 4 hours.
20 In yet another embodiment, the alarm is triggered by an "on"/"off" button or switch.

In one alternative embodiment, the kit comprises a pouch of preserved water. In one embodiment, the pouch holds at least 4 ounces of sterile, purified water. In one embodiment, the water may be used for flushing the eyes, drinking or cleaning a wound. In one
embodiment, the kit comprises a food supply. In one embodiment, the food supply comprises
25 a protein and/or energy bar. In one embodiment, the kit comprises a blanket. In one embodiment, the blanket is flame resistant. In another embodiment, the kit comprises a fire extinguisher.

5 Light Source

In one alternative embodiment, the kit comprises an illumination product. In one embodiment, the illumination product is a flashlight. In one embodiment, the flashlight is a Streamlight flashlight. In one embodiment, the flashlight is waterproof. In another embodiment, the flashlight is a high-intensity light source. In still another embodiment, the flashlight is non-conductive and non-corrosive. In yet another embodiment, the flashlight has an unbreakable polycarbonate lens. In one embodiment, the flashlight provides at least four hours of continuous use. In another embodiment, the flashlight meets nationally and/or internationally recognized safety standards.

In one alternative embodiment, the kit comprises a Omniglow light stick. In one embodiment, the stick provides 12 hours of illumination and 360 degree light generation. In one embodiment, the stick is waterproof, non-spark or heat generating, and easy to activate.

Evacuation Information

In one alternative embodiment, the kit comprises an information card containing indicia on emergency exit floor plans, emergency phone numbers and/or other information relevant to exiting the location in an emergency. In one alternative embodiment, the information card contains company-specific, floor-specific and/or building-specific information.

Kit Container

In one alternative embodiment, an emergency evacuation system comprising a plastic molded container that has a built-in, easy to open handle is provided. In one embodiment, the components of the kit are disposed therein. In one embodiment, the information indicia are disposed on the outer surface of the container. In one embodiment, the container has luminescent lettering disposed on the outer surface of the container for identifying the kit. In

5 one embodiment, the plastic molded container, once opened, is used to collect and/or hold fluid (e.g., rain water).

Figure 2 illustrates a side cross sectional view of an evacuation kit in accordance with one embodiment of the present invention. A plastic molded container 200 contains a flashlight 210, a glow stick 220, an alarm 230, an alarm hook clip 240, two packets of water 10 250 and a smoke hood 260. A cover 270 is affixed to the plastic molded container to seal the container. A portion of the plastic molded container serves as a handle 280.

Figure 3 illustrates a bottom view of view of an evacuation kit in accordance with one embodiment of the present invention. A plastic molded container 300 has a contents section 310, side edges 320, a rear edge 330 and a front edge 340. The front edge of the plastic 15 molded container has a section 350 removed so that the front edge may serve as a handle.

Figure 4 illustrates a cross sectional view of the evacuation kit of Figure 3 in accordance with one embodiment of the present invention. The kit 400 contains a flashlight 410, glow stick 420, alarm 430, alarm hook clip 440, smoke hood 450 and water packets 460.

In one alternative embodiment, the kit is color-coded by expiration date. In one 20 embodiment, a kit is replaced in accordance with its expiration date. In one alternative embodiment, the kit is mounted under a desk. In another embodiment, the kit is mounted on another piece of office equipment. In one alternative embodiment, the kit is mounted on the wall or panel using any suitably attaching means, including but not limited to a hook, suction cups, magnets, brackets, or any combination thereof.

25 Figure 5 illustrates an evacuation kit mounted under a desk in accordance with one embodiment of the present invention. The desk 500 has a mounting bracket 510 underneath it. In other embodiments, the mounting bracket is on the side of the desk, on top of the desk, or inside the desk. The evacuation kit 520 slides into the mounting bracket such that an edge of the evacuation kit rests on top of a surface of the bracket. In one alternative embodiment,

5 the kit slides into the plastic bracket. In one alternative embodiment, the plastic mounting bracket comprises injection molded polystyrene. In one alternative embodiment, the bracket is metal. In one alternative embodiment, the bracket may be used to mount the kit to a wall.

Figure 6 illustrates a top view of an evacuation kit in accordance with one embodiment of the present invention. The kit 600 has a handle portion 610. A gripping
10 mechanism 620 is provided so that the top of the kit may be peeled back to reveal the contents of the kit. The kit also has decals 630 to indicate the contents of the kit and an expiration indicator 640.

In one alternative embodiment, the kit is a nylon, fabric or fire-resistant material waist-pack with waist straps and easy-to-use buckle for quick donning such that the hands are
15 kept free. In another embodiment, the pack is plastic molded insert containing all the safety supplies or kit elements.

In one alternative embodiment, the kit is a vest with the kit components disposed in pockets on the front of the vest for easy access. In one embodiment, the vest fastens through a Velcro buckle system, thus keeping the users hands free. In one embodiment, the vest
20 comprises highly reflective strips for easy visibility. In another embodiment, the vest provides torso protection from flame and heat. In yet another embodiment, the vest comprises a material such that it withstands temperatures up to 550 degree Fahrenheit.

In one alternative embodiment, an evacuation system comprises an evacuation kit, annual customized training classes for employees, instructors, training videos and manuals.

25 Example 1

A Personal SafetyPac™ is created as a self-contained, thermo-formed plastic, handheld package with easy-to-access compartments that hold emergency evacuation tools. Each Personal SafetyPac™ contains an Evac-U8™ smoke hood, flashlight, light stick, personal alarm and preserved water. These tools were chosen to give users the four critical

5 life-saving abilities during an emergency: the ability to breathe, the ability to see, the ability to be seen and the ability to be heard. In addition, every Personal SafetyPac™ includes readily visible floor plans, evacuation routes and internal and external emergency phone numbers.

Smoke Hood allows people to breathe for a minimum of 15 minutes in a smoke-filled
10 environment, giving them time to exit a burning building. It also keeps the face and eyes shielded from heat and debris.

Water Packets can preserve sight by flushing debris, soot and smoke from the eyes.

Flashlight will help the user see and be seen in a dark and/or smoke-filled environment.

15 Personal Alarm can serve as a distress signal for individuals needing assistance.

Light Stick will help users see and be seen in the dark.

Non language dependent graphics-based instructions avoid literacy/language issues.

Easy-to-open protective packaging can be conveniently mounted under a desk or on a panel.

20 Plastic, molded insert securely holds the components – even after package has been opened.

The tray has a built-in handle for quick grab-and-go portability.

Illuminescent lettering on the exterior of the kit packaging makes the kit more visible, and thus easier to locate, in the dark.

25 An integrity-seal will discourage pilfering of the contents of the kit.

Outer packaging displays emergency information including exit floor plans, internal emergency numbers and local emergency contact information.

Color-coded expiration labels easily identify SafetyKits™ needing replacement

- 5 It should be appreciated that although preferred embodiments of the present invention are discussed above, those of skill in the art can modify the disclosed structure and arrangement of the various features of the present dispenser without departing from the true scope of the present invention.

5 CLAIMS

I claim:

1. A housing defining a chamber for holding dispensable objects, said housing including at least a base and rear wall within which said dispensable objects can be placed into and removed from said chamber; and
10 a lid arranged on said housing, said lid having an means for selectively opening and closing access to said chamber through said open section of said housing, said lid being secured to said side walls to said housing and being movable about an axis of rotation between an open portion where said dispensable objects can be removed form said chamber and a closed position where said dispensable objects cannot be removed from said chamber.
- 15 2. The dispenser of claim 1 wherein said lid is partially cylindrical; said housing including one or more pins extending along said axis of rotation.
3. The dispenser of claim 2 where said arcuate top of said lid includes an outer surface.
4. The dispenser package of claim 1 further comprising a mounting system for attaching the dispenser unit to a solid surface, such as a wall.
- 20 5. The dispenser package of claim 1 further comprising locating beacons, photo-illuminiscent decals, tamper deterrent film covering and safety communicative decals.
6. The dispenser package of claim 1 where said lid has a projection on the top section of said housing, said projection acting as means for rotating the lid in an open or closed position.
7. The dispenser package of claim 1 where said lid has a handle used for positioning said
25 lid between said open and closed positions.
8. A smoke hood storage dispenser comprising:
a housing defining a chamber for holding one or more smoke hoods stored in a cylindrical container, said housing including a rear wall and a base within which said smoke hoods can be placed into and removed from said chamber; and

- 5 an arcuate lid arranged on said housing, said lid having means for selectively opening and closing access to said chamber through said open section of said housing, said lid being secured to said rear wall or said base of said housing and being rotatable about an axis of rotation between an open and closed position where said smoke hood can be withdrawn from said chamber and a closed position where said smoke hood cannot be removed from said
- 10 chamber.
9. The dispenser of claim 8 wherein said lid is at least partially cylindrical.
10. The dispenser of claim 9 where said dispenser comprises a mounting system, locating beacons, photo-illuminant/glow in the dark decals, tamper deterrent film covering and safety communicative decals.
- 15 11. The dispenser of claim 8 wherein said lid comprises pins extending inwardly along the axis of rotation, said housing includes apertures in said side walls in which corresponding ones of said pins are arranged.
12. A prepackaged emergency evacuation kit comprising a plurality of components selected from the group consisting of:
- 20 (a) smoke hood;
- (b) flashlight;
- (c) light stick;
- (d) sterile water; and
- (e) personal alarm.
- 25
13. The prepackaged emergency evacuation kit of claim 12 further comprising a sealed molded storage container.

- 5 14. The prepackaged emergency evacuation kit of claim 13 in which said storage
 container comprises a plurality of storage compartments that releasably hold said
 plurality of components.
15. The prepackaged emergency evacuation kit of claim 14 further comprising a
 broken seal indicating means.
- 10 16. The prepackaged emergency evacuation kit of claim 12 further comprising a
 safety vest.
17. An evacuation kit comprising:
- a. a container; and
- b. a personal alarm positioned within said container.
- 15 18. The evacuation kit of claim 17 wherein said container is a plastic molded
 container.
19. The evacuation kit of claim 18 further comprising:
- a mounting bracket.
- 20 20. The evacuation kit of claim 19 wherein said mounting bracket is attached to a
 desk.
21. The evacuation kit of claim 19 wherein said mounting bracket is attached to a
25 wall.
22. The evacuation kit of claim 17 wherein said container is a vest.
23. The evacuation kit of claim 17 wherein said container is a pouch worn about a
30 user's waist.

- 5 24. The evacuation kit of claim 17 further comprising:

 a smoke hood.
25. The evacuation kit of claim 17 further comprising:

10 a packet of water.
26. The evacuation kit of claim 17 further comprising:

 a light source.
- 15 27. The evacuation kit of claim 26 wherein said light source is a flashlight.
28. The evacuation kit of claim 26 wherein said light source is a glow stick.
29. The evacuation kit of claim 17 further comprising:

20 a chemical packet.
30. The evacuation kit of claim 17 further comprising:

 an alarm clip hook.
- 25 31. The evacuation kit of claim 17 further comprising:

 a food supply.
32. The evacuation kit of claim 17 further comprising:

 a fire extinguisher.
- 30 33. The evacuation kit of claim 17 further comprising:

5 a blanket.

34. The evacuation kit of claim 17 wherein said container is color coded according to an expiration date.

10 35. The evacuation kit of claim 17 wherein said personal alarm is inaudible to human beings.

36. The evacuation kit of claim 17 further comprising:

a hearing protection device.

15 37. An evacuation kit comprising:

a container;

a personal alarm positioned within said container;

a mounting bracket;

20 a smoke hood;

a packet of water; and

a light source.

38. An method of providing safety equipment comprising:

25 supplying a container; and

positioning a personal alarm within said container.

39. The method of claim 38 wherein said container is a plastic molded container.

30 40. The method of claim 37 further comprising:

providing a mounting bracket.

- 5
41. The method of claim 40 wherein said mounting bracket is attached to a desk.
42. The method of claim 40 wherein said mounting bracket is attached to a wall.
- 10
43. The method of claim 38 wherein said container is a vest.
44. The method of claim 38 wherein said container is a pouch worn about a user's waist.
- 15
45. The method of claim 38 further comprising:
providing a smoke hood.
46. The method of claim 38 further comprising:
providing a packet of water.
- 20
47. The method of claim 38 further comprising:
providing a light source.
48. The method of claim 38 wherein said light source is a flashlight.
- 25
49. The method of claim 38 wherein said light source is a glow stick.
50. The method of claim 38 further comprising:
providing a chemical packet.
- 30
51. The method of claim 38 further comprising:

- 5 providing an alarm clip hook.
52. The method of claim 38 further comprising:
- providing a food supply.
- 10 53. The method of claim 38 further comprising:
- providing a fire extinguisher.
54. The method of claim 38 further comprising:
- providing a blanket.
- 15 55. The method of claim 38 wherein said container is color coded according to an
 expiration date.
56. The method of claim 38 wherein said personal alarm is inaudible to human
20 beings.
57. The method of claim 38 further comprising:
- providing a hearing protection device.
- 25 58. An method of providing safety equipment comprising:
- supplying a container;
- positioning a personal alarm within said container;
- providing a mounting bracket;
- providing a smoke hood;
- 30 providing a packet of water; and
- providing a light source.

5

59. The method of claim 58 further comprising:

providing an annual customized training class;

providing an instructor;

providing a training video; and

10

providing a manual.

Figure 1

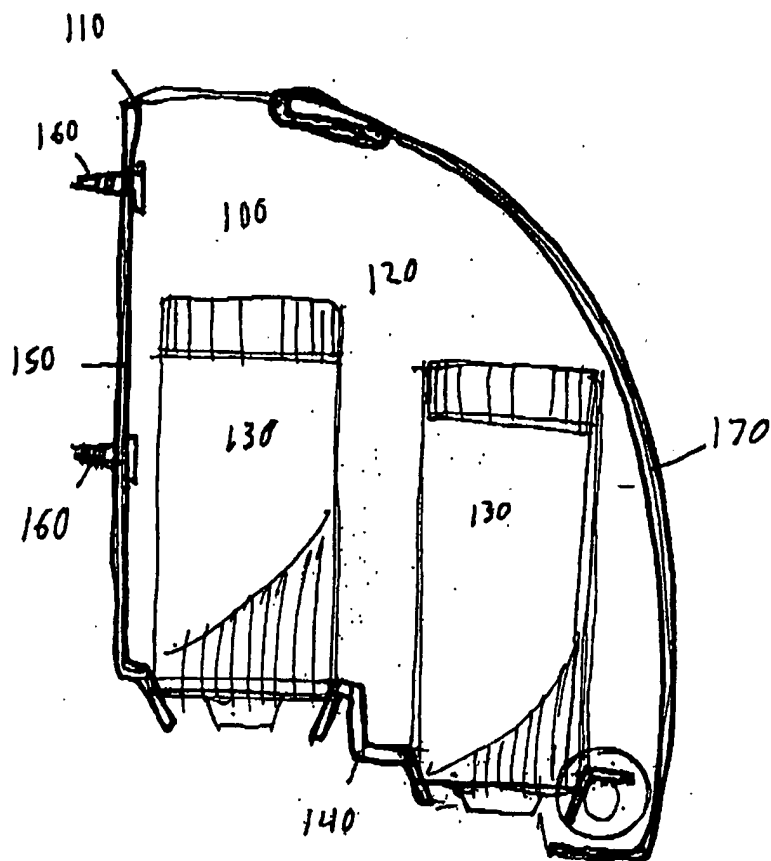
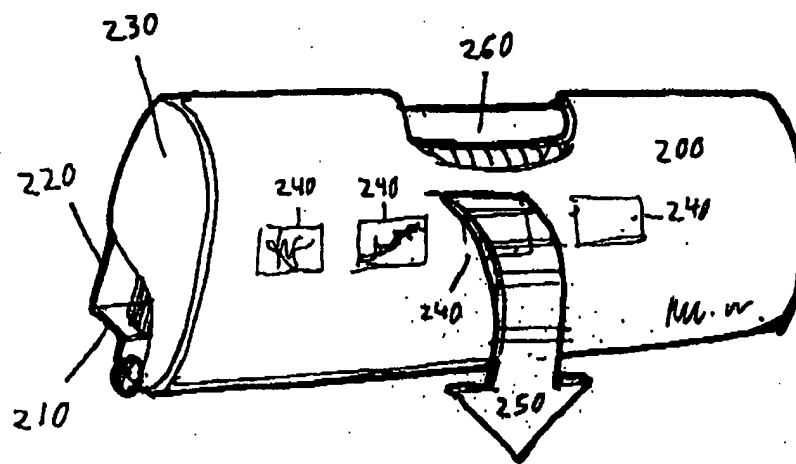


Figure 2



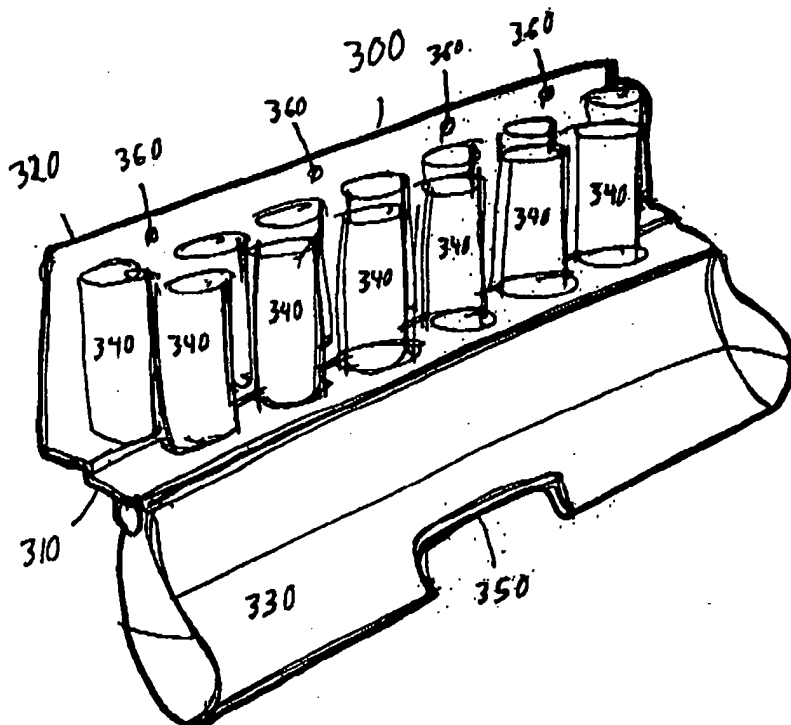


Figure 3

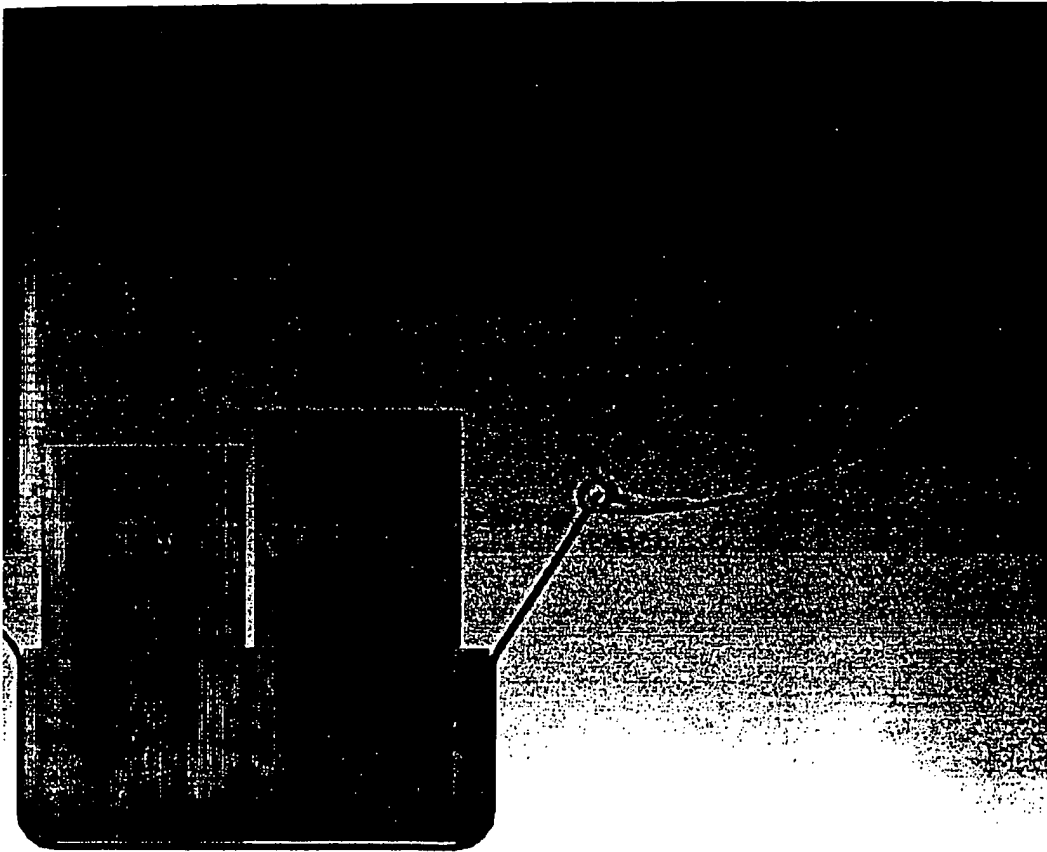


Figure 4

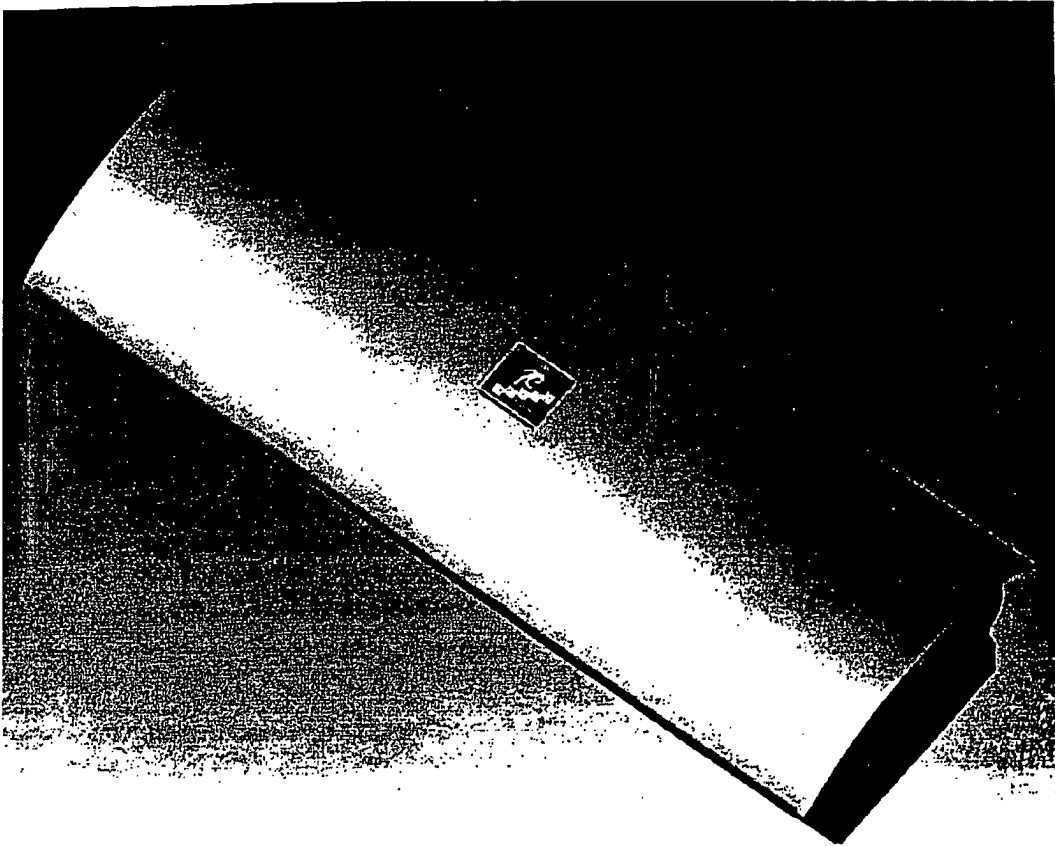


Figure 5

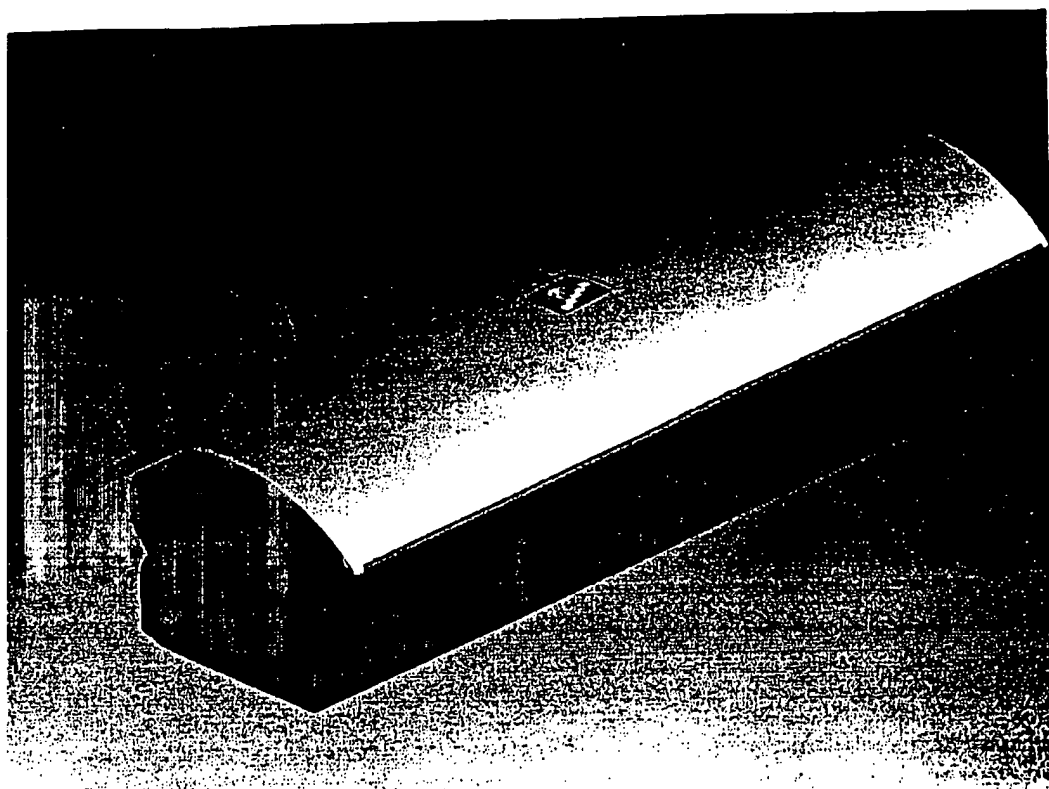


Figure 6

Fig. 7

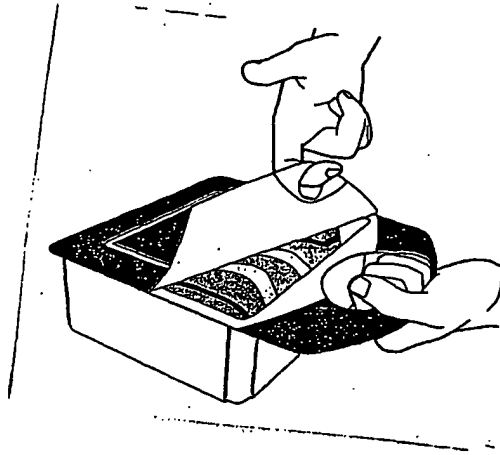


Fig. 8

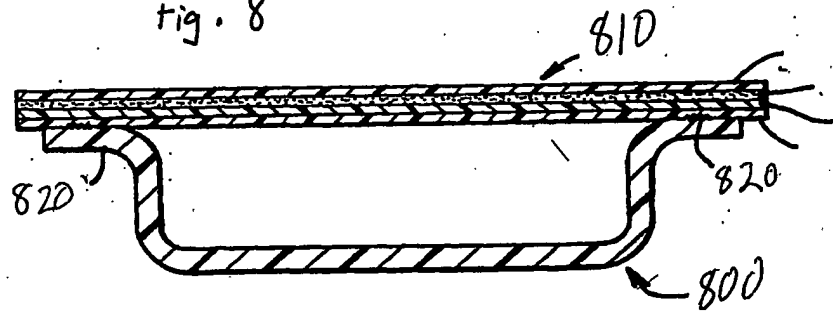


Fig. 9

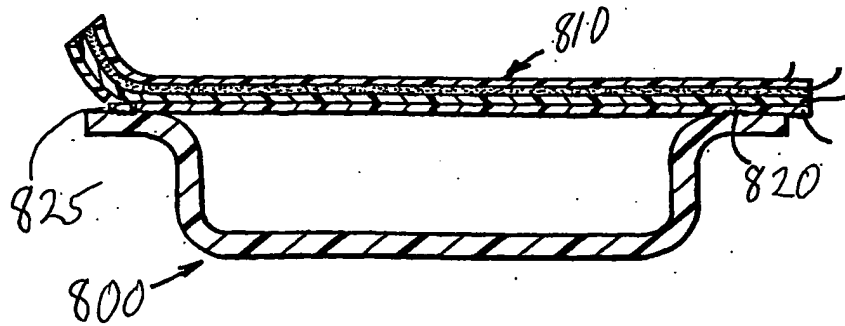


Fig. 10

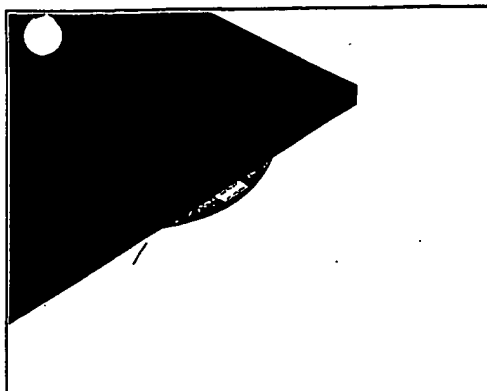


Fig. 11

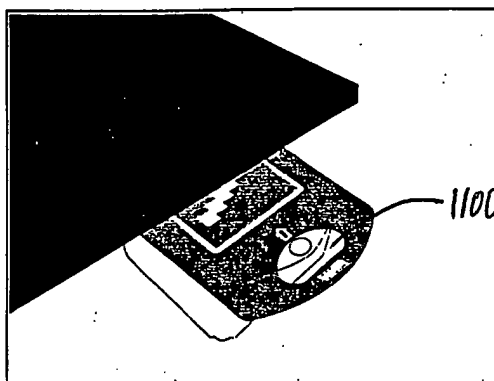
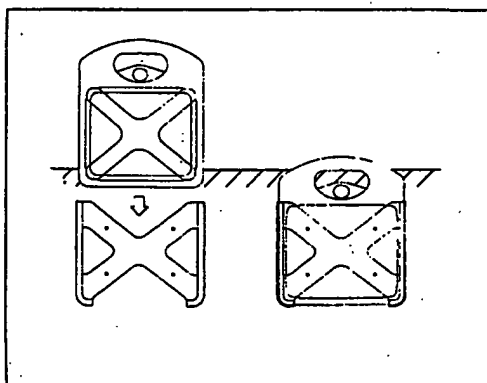
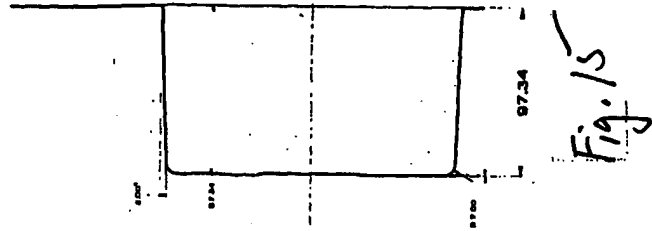
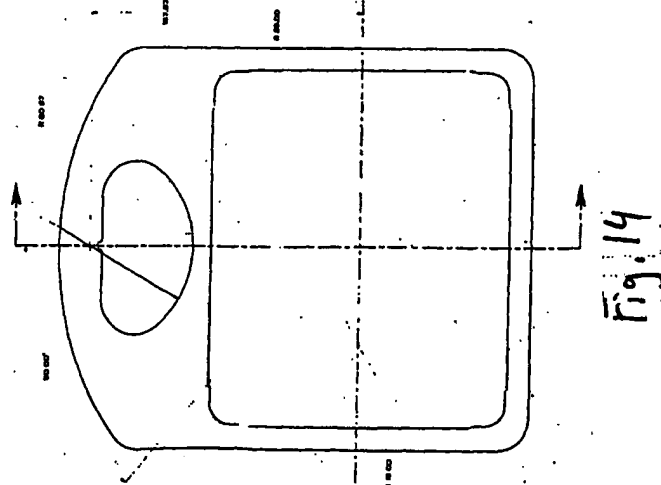
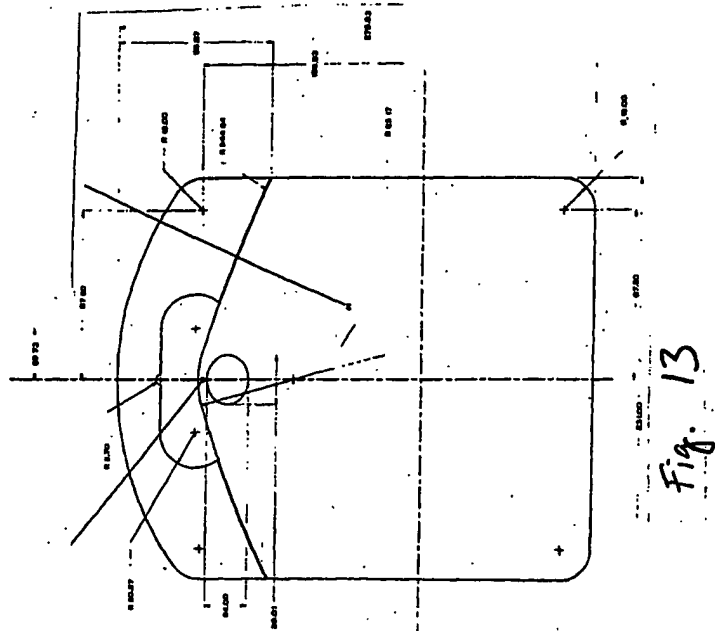


Fig. 12





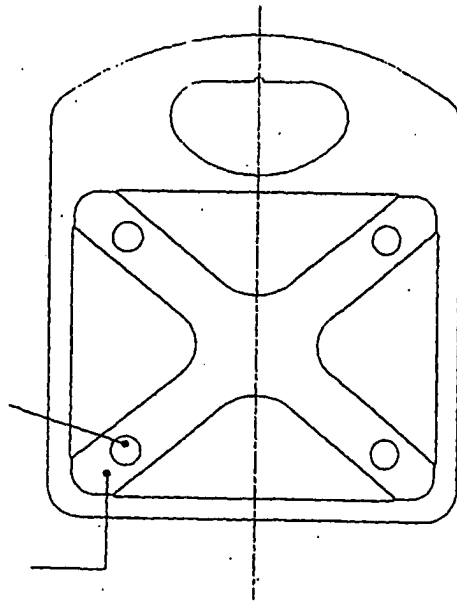


Fig. 16

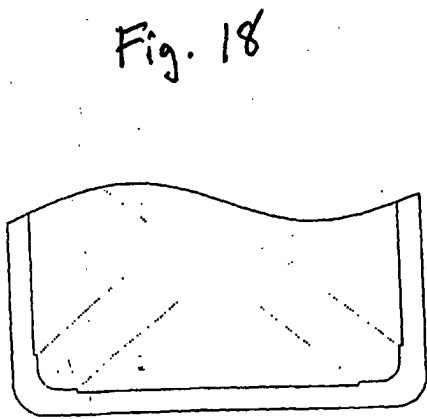


Fig. 18

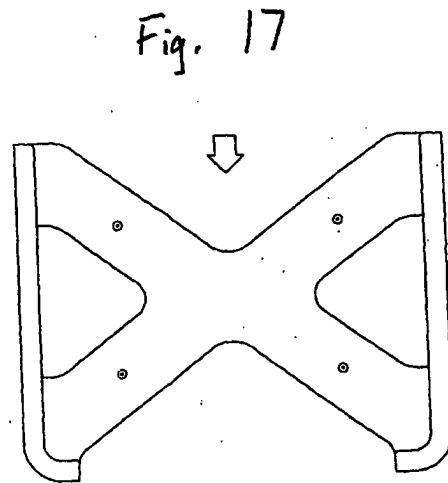


Fig. 17

FIG. 23

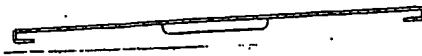


FIG 24

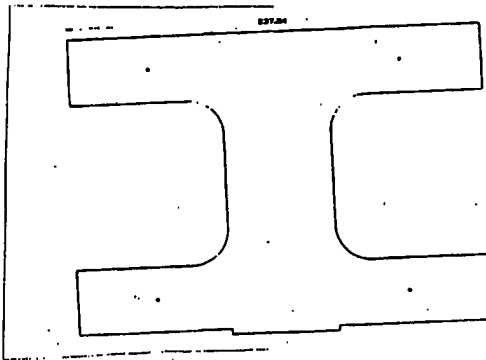


FIG. 25

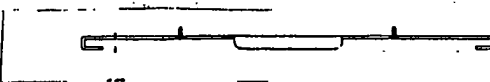


FIG. 26



FIG. 27

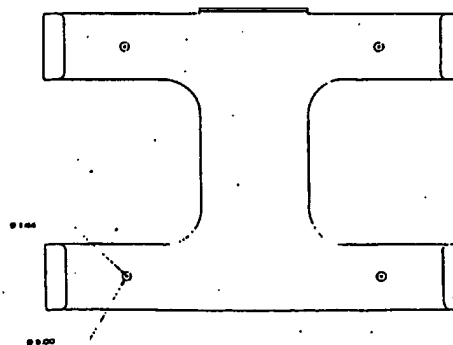


FIG 28



FIG. 29



FIG. 30

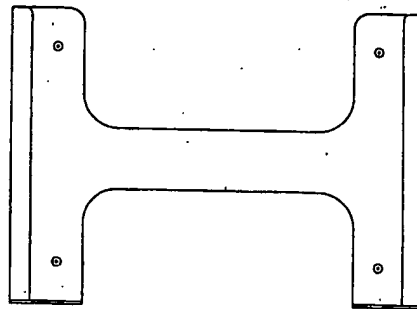


FIG. 31

FIG. 34

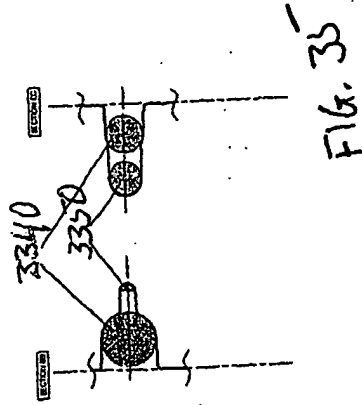


FIG. 33

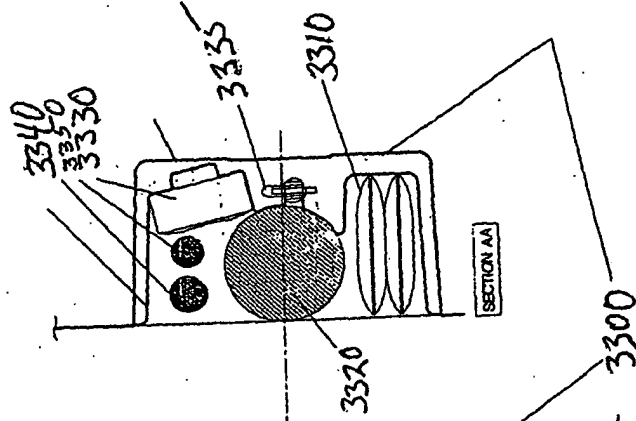


FIG. 32

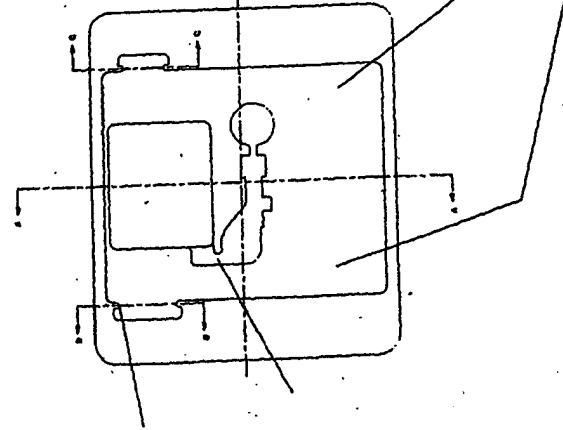


FIG. 36

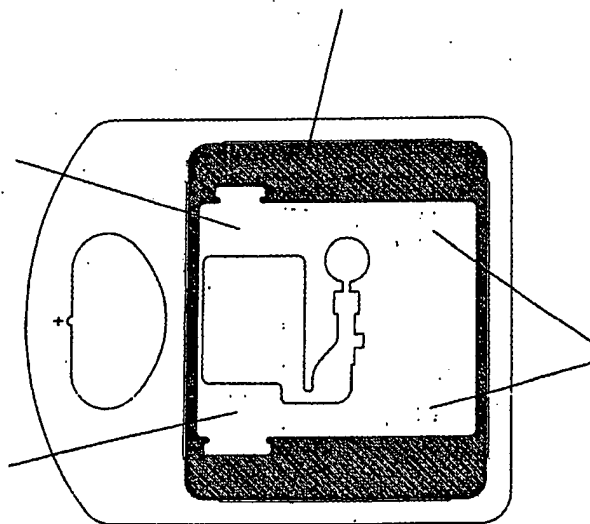


FIG. 37

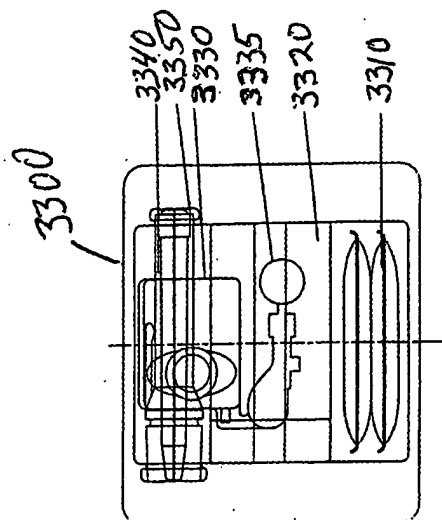
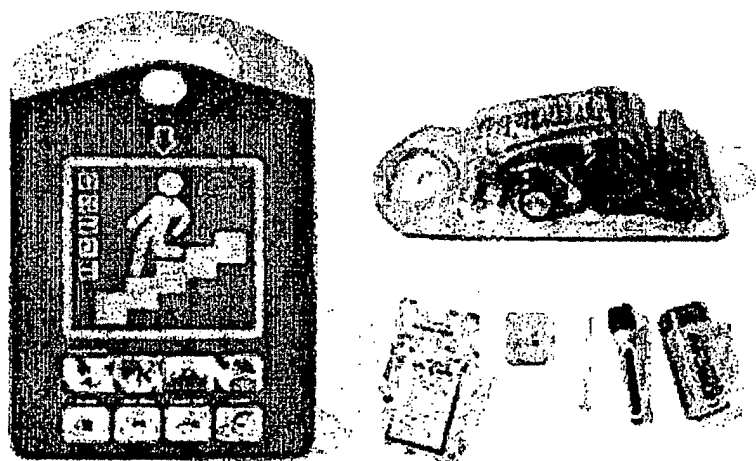


FIG. 38



39
Figure

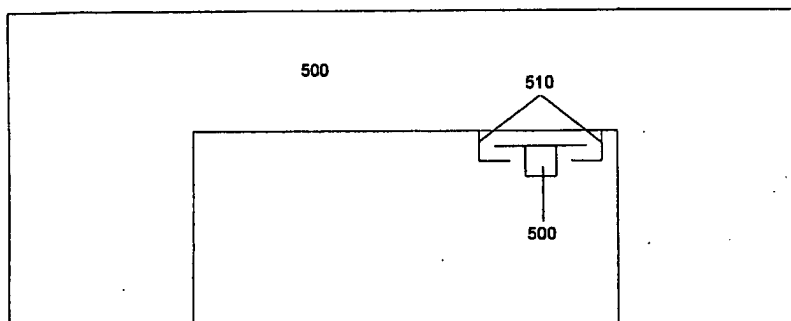
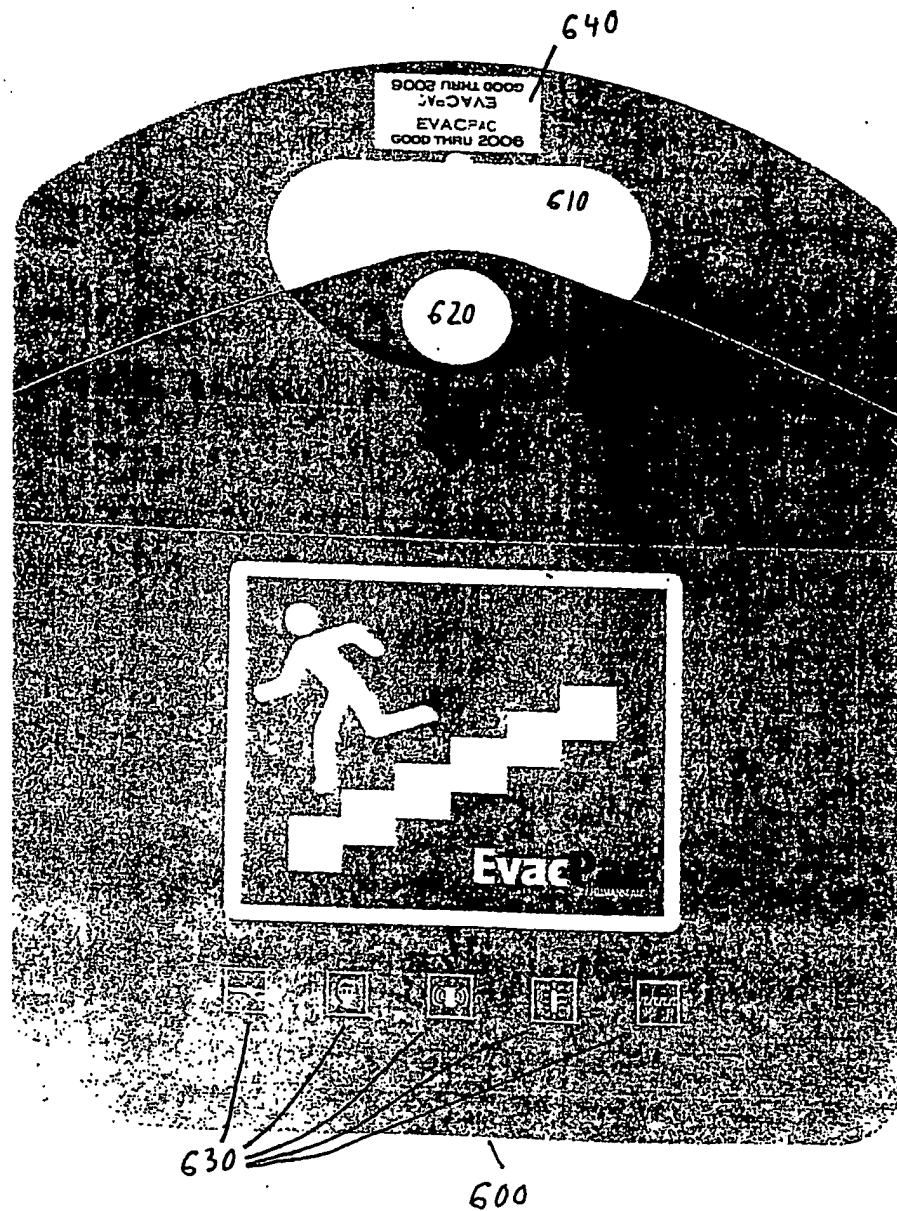
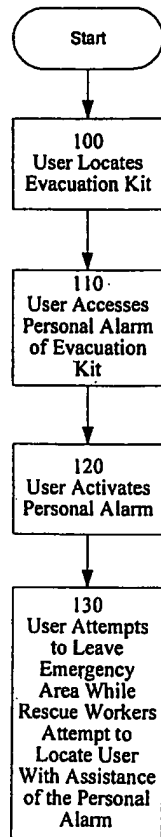


Figure 40

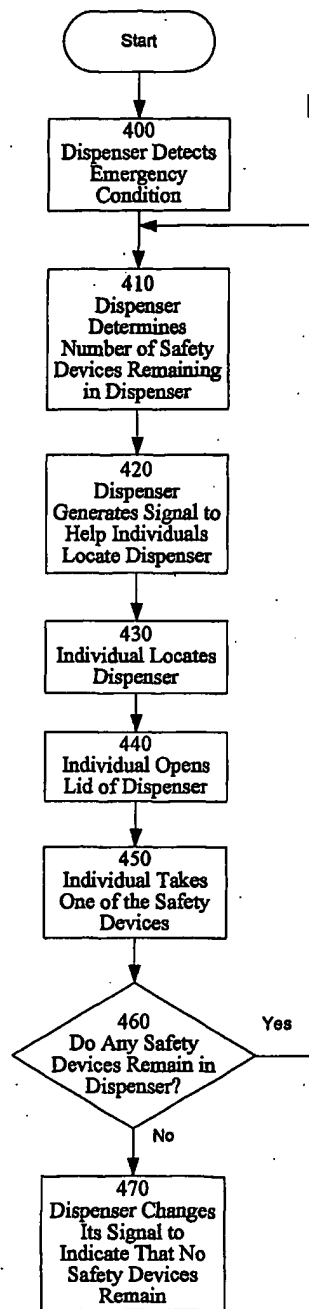




Figure

41

Figure 4



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/08403

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : B65D 85/00 US CL : 206/570, 573, 575, 223, 232, 803 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 206/570, 573, 575, 223, 232, 803 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPGPUB, DERWENT, EPO, JPO		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	GB 2,216,106 A (Gebr. Noggerath) 04 October 1999, entire document.	1,4 — 2-3 and 5-7
X — Y	US 657,463 A (SIMPSON) 04 September 1900, entire document.	1-3 and 6-7 — 4-5
Y	US 5,884,760 A (CARPENTER) 23 March 1999, entire document.	1-7
A	US 5,560,491 A (ROMANIUK et al.) 01 October 1996, entire document.	1-7
A	US 4,108,311 A (McCLENDON) 22 August 1978, entire document.	1-7
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"B" earlier application or patent published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family	
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 07 July 2003 (07.07.2003)	Date of mailing of the international search report 23 JUL 2003	
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Jila M Mohandesi Telephone No. (703) 305-7015 <i>Sheila H. Velez</i> Paralegal Specialist Tech. Center 3700	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/08403

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-7

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US03/08403

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

- I. Claims 1-7, drawn to a housing for holding dispensable objects.
- II. Claims 8-11, drawn to a smoke hood storage dispenser.
- III. Claims 12-16, drawn to a prepackage emergency evacuation kit.
- IV. Claims 17-37, drawn to an evacuation vest.
- V. Claims 38-57, drawn to a method of providing safety equipment.
- VI. Claims 58-59, drawn to a method of providing safety instruction. The inventions listed as Groups I, II, III, IV, V and VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The common feature (a housing for holding dispensable objects) is shown in U.S. patent 5,560,491. Accordingly said common feature is not a special technical feature. The expression "special technical features" shall mean those technical features that define a contribution with each of the claimed inventions, considered as a whole, makes over the prior art. 37 CFR 1.475(a).